



SANYO Semiconductors

## DATA SHEET

P-Channel Silicon MOSFET

# 6HP04MH — General-Purpose Switching Device Applications

## Features

- 4V drive.

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-120	mA
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-480	mA
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm)	0.6	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-100μA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-60mA	100	180		mS
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-60mA, V <sub>GS</sub> =-10V		5.1	6.6	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-30mA, V <sub>GS</sub> =-4V		6.8	9.6	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-20V, f=1MHz		13.5		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =-20V, f=1MHz		3.4		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =-20V, f=1MHz		1.3		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		36.5		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		38.0		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		455		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		160		ns

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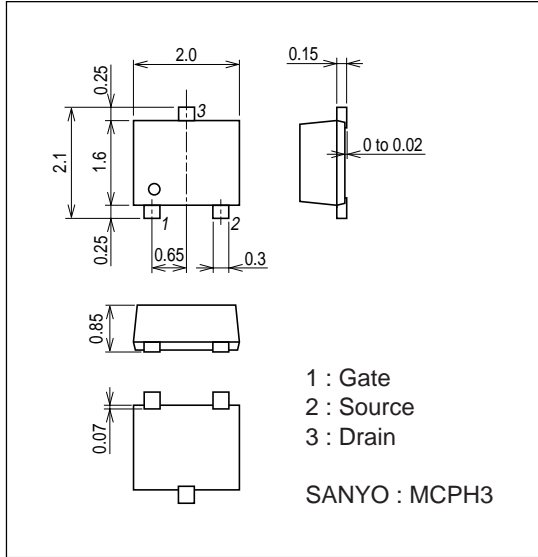
# 6HP04MH

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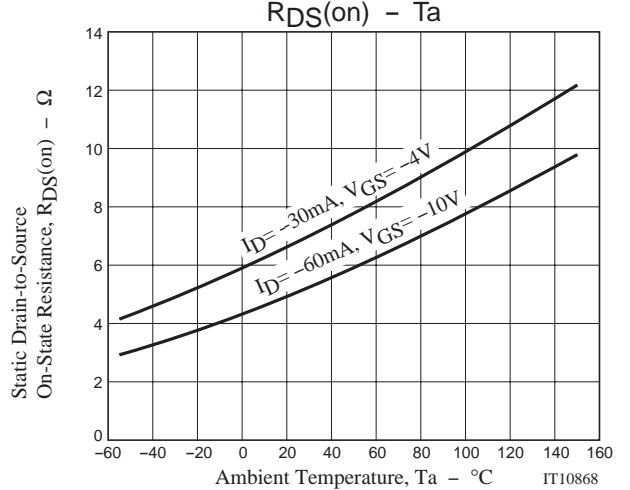
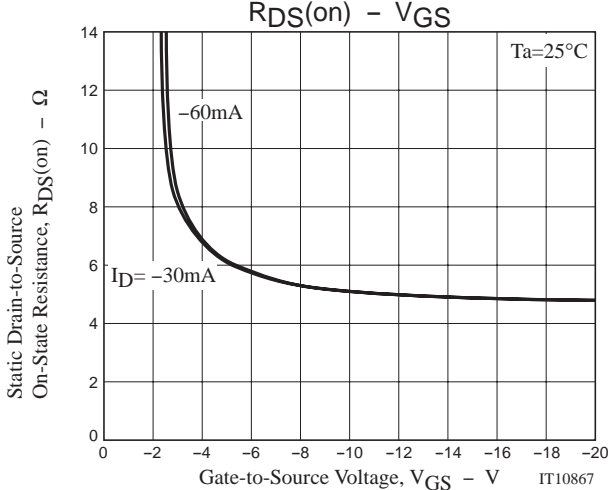
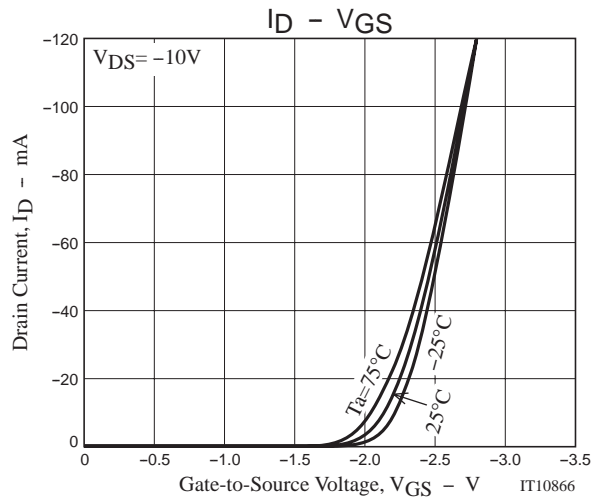
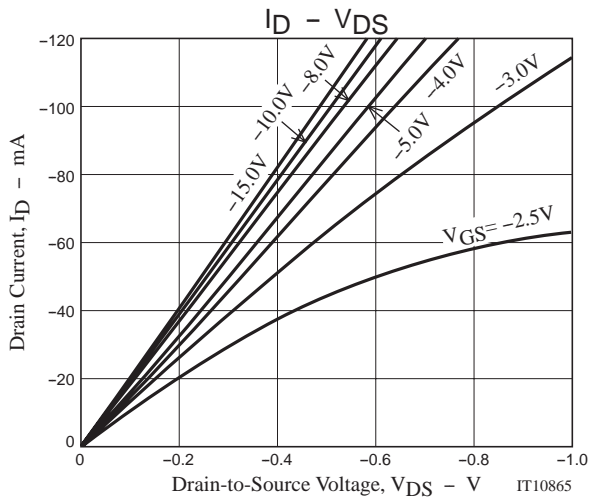
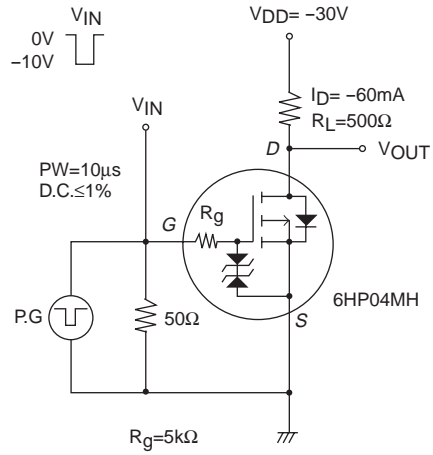
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-30V, V_{GS}=-10V, I_D=-120mA$		1.6		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-30V, V_{GS}=-10V, I_D=-120mA$		0.4		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-30V, V_{GS}=-10V, I_D=-120mA$		0.16		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-120mA, V_{GS}=0V$		-0.85	-1.2	V

## Package Dimensions

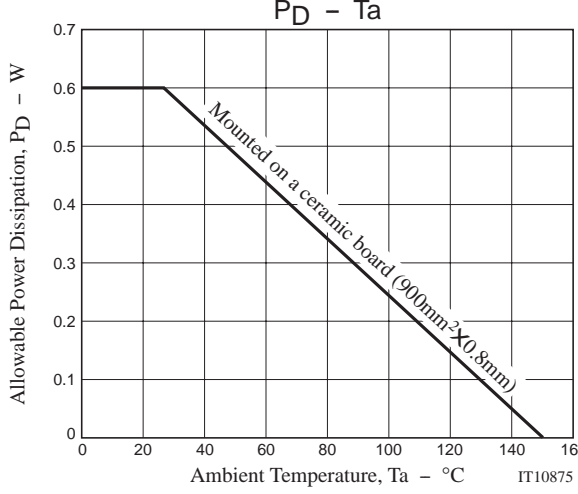
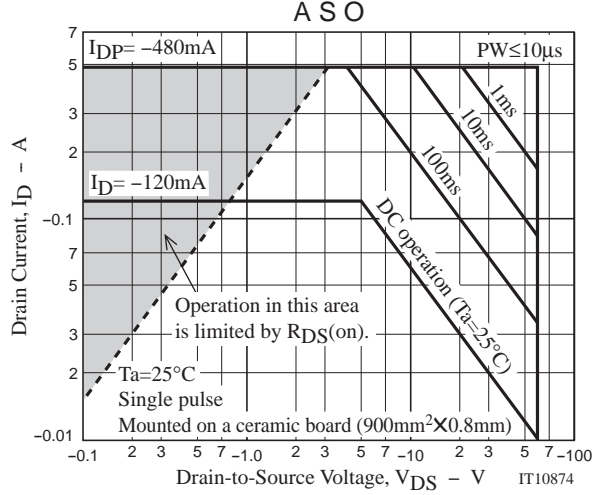
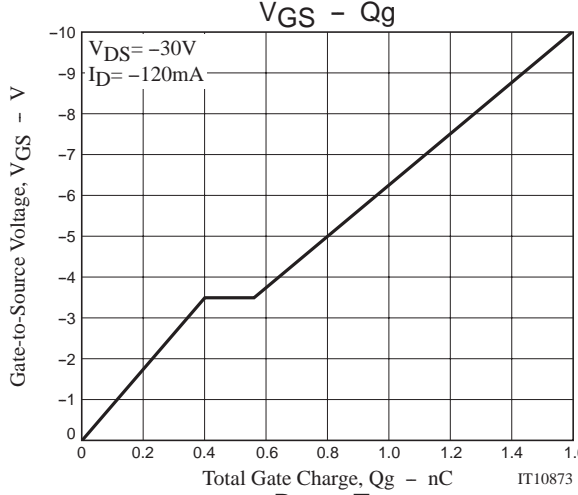
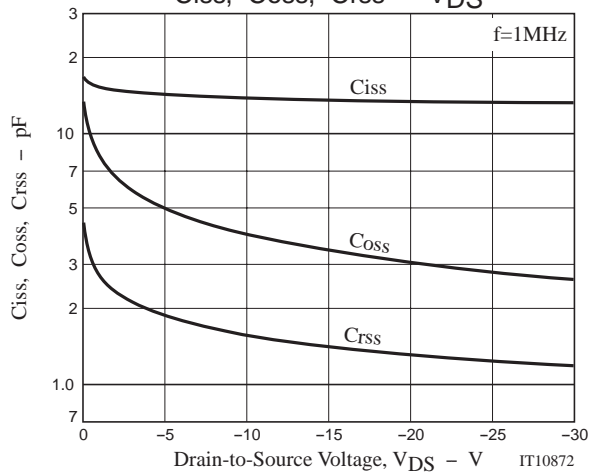
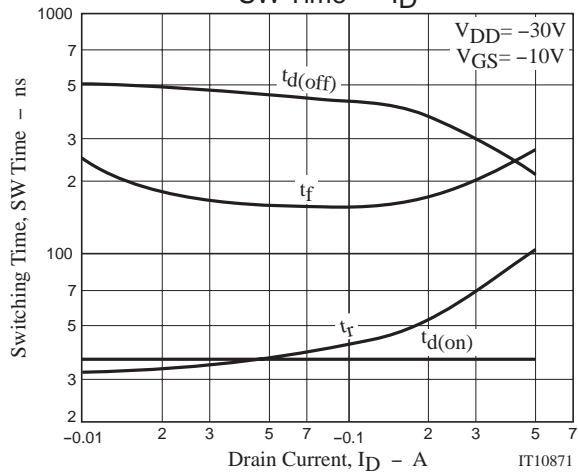
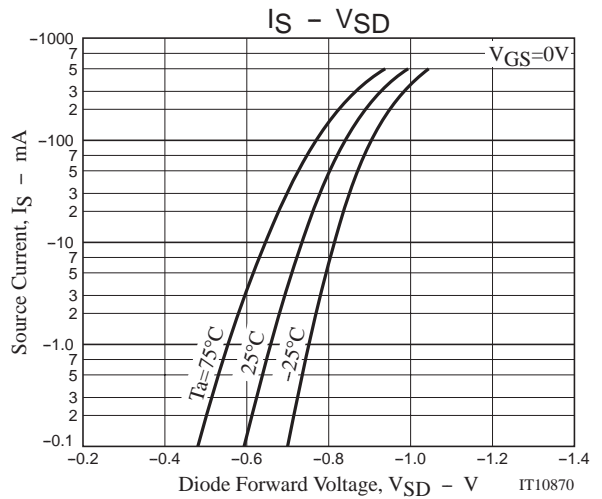
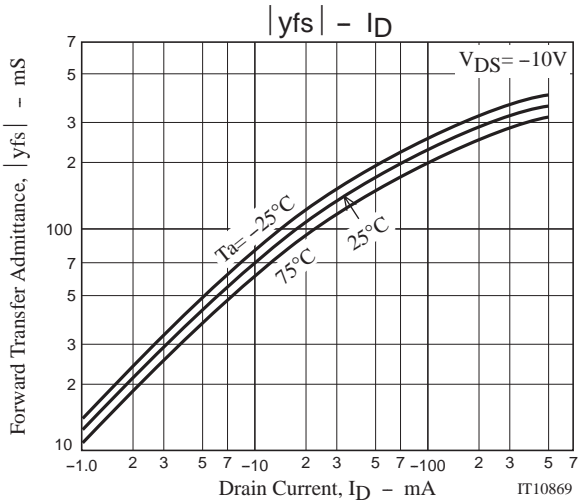
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## Switching Time Test Circuit



# 6HP04MH



Note on usage : Since the 6HP04MH is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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